

CLIPPEDIMAGE= JP407321411A

PAT-NO: JP407321411A

DOCUMENT-IDENTIFIER: JP 07321411 A

TITLE: SEMICONDUCTOR DEVICE PROVIDED WITH V-GROOVE
STRUCTURE

PUBN-DATE: December 8, 1995

INVENTOR-INFORMATION:

NAME

SHIMOYAMA, KENJI

KIYOMI, KAZUMASA

GOTO, HIDEKI

ASSIGNEE-INFORMATION:

NAME

MITSUBISHI CHEM CORP

COUNTRY

N/A

APPL-NO: JP06114977

APPL-DATE: May 27, 1994

INT-CL (IPC): H01S003/18;H01L021/20 ;H01L029/06

ABSTRACT:

PURPOSE: To easily obtain a quantum wire of good quality and to enhance the efficiency of a semiconductor device by a method wherein a groove whose cross section is V-shaped is formed in at least a part of a semiconductor substrate or of an epitaxial growth layer grown on the semiconductor substrate and an active layer is formed in the part of the bottom of the V-shaped groove.

CONSTITUTION: A semiconductor device has a structure wherein an Al_{0.5}Ga_{0.5}As clad layer epitaxially grown on a GaAs (100) substrate is formed, a V-groove is formed in the clad layer, a GaAs active

layer is formed and a second $\text{Al}_{0.5}\text{Ga}_{0.5}\text{As}$ clad layer is formed additionally on the active layer. Then, the clad layer as the outside layer which comes into contact with the inside of a V-shaped structure on the slope of the V-groove has a relationship that the energy gap of the clad layer at the outside is larger than the energy gap of the clad layer at the inside. When such a structure is adopted, a current can be concentrated in the GaAs active layer situated at the bottom of the V-groove, and the structure can be used especially suitably for a laser diode or the like.

COPYRIGHT: (C)1995, JPO